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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/597,931	06/19/2000	James C. Chen	CHEN0131	4536

25268 7590 03/05/2002

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EXAMINER	
HOBDEN, DAVID V	

ART UNIT	PAPER NUMBER
2875	6

DATE MAILED: 03/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/597,931	CHEN ET AL.	
	Examiner	Art Unit	
	David V. Hobden	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 September 2001* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 7-26* is/are rejected.

7)☐ Claim(s) *6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 June 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 2, 4, 8, 12, 23, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parker *et al.* (US 5,895,115) in view of Ishibashi (US 5,931,577).

Parker discloses a flexible vehicular light source, or light emitting panel **21** that mounts on and conforms to a shape of an external surface of a vehicle (figures 3 and 4) and emits light that provides illumination of a surface over which the vehicle is traveling, indicates an intention of a driver to turn or stop the vehicle, and/or provides an indication of a location of the vehicle (column 1, lines 10-20), the flexible vehicular light source having:

(a) a flexible substrate **26** having a rear, or lower, surface and a front, or upper, surface, and including a plurality of flexible conductive traces **19**, the plurality of flexible conductive traces connecting to an electrical system of a vehicle to receive electrical current (figures 2 - 4; column 1, lines 50-63);

(b) a plurality of solid-state light emitting devices **31** (column 9, lines 6-28) mounted in a spaced apart, or high density, array behind the flexible substrate, the array

extending in two orthogonal directions, the plurality of solid-state light emitting devices, emitting light outwardly from behind the flexible substrate, being electrically energized by an electrical current from, and connecting to, an electrical system of a vehicle (column 8, lines 44-47); and

(c) a transparent flexible envelope **34** (column 8, lines 57-63; column 1, lines 50-63) that extends over the plurality of solid-state light emitting devices, providing protection against abrasion, the light emitted by a second plurality of solid-state light emitting devices passing through the transparent flexible envelope, the rear surface of the flexible substrate being mounted on an exterior surface of a vehicle and being able to conform to a non-planar curve of the exterior surface (figure 4; column 3, lines 1-5, column 8, lines 17-34, column 13, lines 33-60).

Parker does not disclose expressly

(a) a first flexible layer having a flexible substrate with a plurality of edge surfaces, such that surface area of both the rear surface and the front surface are each individually and substantially than a surface area of any of the edge surfaces.

(b) a second flexible layer having a plurality of solid-state light emitting devices **11** (figure 13) mounted in a spaced apart array on the flexible substrate, the plurality of solid-state light emitting devices emitting light outwardly and away from the flexible substrate, being electrically energized by an electrical current from the plurality of flexible conductive traces.

Ishibashi discloses

(a) a first flexible layer having a flexible substrate **5** with a plurality of edge surfaces, such that surface area of both the rear surface and the front surface are each individually and substantially than a surface area of any of the edge surfaces (figure 1)

(b) a second flexible layer **4** having a plurality of solid-state light emitting devices **11** (figures 1 and 2) mounted in a spaced apart array on the upper surface **4** of the flexible substrate, the plurality of solid-state light emitting devices emitting light outwardly and away from the flexible substrate, being electrically energized by an electrical current from a plurality of flexible conductive traces **7** (figure 1; column 4, lines 3-43); and

(c) a third flexible layer having a transparent flexible envelope **15**,**16** (figure 13) that extends over the plurality of solid-state light emitting devices **11**, providing protection against abrasion, the light emitted by the plurality of solid-state light emitting devices passing through the transparent flexible envelope (column 6, lines 9-21), each flexible layer having sufficient flexibility that when all three flexible layers are combined to achieve the multi-layered flexible vehicular light source, the light source is sufficiently flexible to conform to a substantially non-planar surface (column 1, lines 26-30; column 2, lines 19-27).

Parker and Ishibashi are analogous art because they are from a similar problem solving area of successfully mounting a plurality of solid-state light emitting devices mounted in a spaced apart array on a flexible substrate.

It would have been obvious to a person of ordinary skill in the art to mount Ishibashi's plurality of solid-state light emitting devices mounted on the flexible substrate

of Parker in a spaced apart array in the configuration shown by Parker receiving electrical current from the plurality of electrical traces disclosed by Parker.

The suggestion/motivation for doing so would have been improve the visibility of Parker's array of light emitting devices by placing them on, rather than behind, the flexible surface.

Parker discloses the flexible vehicular light source of Claim 1, further having a plurality of internally reflective surfaces **10**, each disposed proximate a different one **9** of the plurality of solid-state light emitting devices, the internally reflective surfaces focusing the light emitted by the plurality of solid-state light emitting devices in a desired direction, away from the front surface of the flexible substrate (column 7, lines 1-35),

where the plurality of solid-state light emitting devices are arrayed in a plurality of groups, the solid-state light emitting devices in each group emitting light having a different waveband than those in an adjacent group (column 5, lines 9-23), or

where the vehicular light source includes a plurality of different groups of the solid-state light emitting devices that are separately selectively energizable, and where the transparent flexible envelope overlying the different groups is divided into different areas that are colored to transmit light of differing colors when each group of solid-state light emitting devices is selectively energized (column 5, lines 17-23), or

where the flexible substrate is mounted within a recess formed in the exterior surface of the vehicle (column 1, lines 58-63, column 8, lines 57-63, column 9, lines 22-29).

2. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parker and Ishibashi as applied to claim 1 above, and further in view of Duarte (5,559,681).

Parker does not disclose expressly the flexible vehicular light source of claim 1, further having:

an adhesive applied to the rear surface of the flexible substrate for use in adhesively attaching the flexible substrate to the exterior of a vehicle.

Duarte discloses an adhesive **32** applied to the rear surface of the flexible substrate **30** for use in adhesively attaching the flexible substrate to a surface (figure 3; column 4, lines 12-19).

Parker, Ishibashi, and Duarte are analogous art because they all disclose flexible light panels using solid-state light emitting devices.

The suggestion/motivation for doing so would have been to utilize a simple and inexpensive mounting means for affixing the flexible substrate to an exterior surface of a vehicle where the mounting means would be resistant to collision damage.

Therefore, it would have been obvious to combine Duarte with Parker and Ishibashi to obtain the invention as specified in claim 3.

3. Claims 5, 7, 13-17, 19, 20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parker *et al.* and Ishibashi as applied to claims 1 and 4 above, and further in view of Gustafson (5,848,837).

Parker further discloses a flexible light emitting panel for application to an exterior surface of a vehicle, having:

(c) a flexible protective, generally light transmitting cover **34** overlying the plurality of solid-state light emitting devices **9**, the flexible substrate on which the solid-state light emitting devices are mounted and the flexible protective cover having a flexible panel that is affixed to and conforms to the exterior surface of a vehicle, even though the exterior surface is non-planar, producing light when the solid-state light emitting devices are energized by the electrical current (figures 3 and 4; column 1, lines 50-63, column 8, lines 14-63).

Parker does not disclose expressly a flexible light emitting panel for application to an exterior surface of a vehicle, having:

(a) a flexible substrate including a positive flexible conductive trace and a negative flexible conductive trace;

(b) a plurality of solid-state light emitting devices where an anode of each solid-state light emitting device being electrically connected to the positive flexible conductive trace and a cathode of each solid-state light emitting device being electrically connected to the negative flexible conductive trace;

Gustafson discloses a flexible light emitting panel **10** having:

(a) a flexible substrate **14** including a positive flexible conductive trace **20a** and a negative flexible conductive trace **20b** (column 4, lines 13-53);

(b) a plurality of solid-state light emitting devices **26** where an anode of each solid-state light emitting device being electrically connected to the positive flexible conductive trace and a cathode of each solid-state light emitting device being electrically connected to the negative flexible conductive trace;

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to electrically connect an anode of each solid-state light emitting device to the positive flexible conductive trace and electrically connect a cathode of each solid-state light emitting device to the negative flexible conductive trace.

The suggestion/motivation for doing so would have been because such devices have polarity and will not all illuminate when connected in a parallel circuit unless such connection is utilized.

Parker and Gustafson are analogous art because they both disclose flexible light panels that may be attached to non-planar vehicle surfaces to be used as running lights or visibility lights (Parker: column 1, lines 50-55; Gustafson: column 10, lines 12-18).

The suggestion/motivation for doing so would have been to utilize an improved single piece LED light panel that is impervious to moisture and provides a high degree of protection to other forms of potentially damaging elements and is produced in a cost effective manner (Gustafson: column 2, lines 23-42).

Regarding claim 5, Parker further discloses the flexible vehicular light source of Claim 4,

where the solid-state light emitting devices in a first group emit white light, the solid-state light emitting devices in a second group emit red light, and the solid-state light emitting devices in a third group emit amber light, the vehicular light source being mounted on a rear portion of a vehicle (column 5, lines 9-23; figures 3 and 4, column 8, lines 47-63).

Regarding claim 7, the flexible vehicular light source of Claim 1,

where at least a portion of the solid-state light emitting devices in a first group emit yellow light.

Regarding claim 14, Parker further discloses that the plurality of solid-state light emitting devices **9** are grouped in regard to a color of light emitted, the plurality of solid-state light emitting devices having a plurality of groups, each group emitting light of a different color (column 5, lines 9-23).

Regarding claim 15, Parker further discloses where the flexible panel includes a first group of solid-state light emitting devices that emit white light, a second group of solid-state light emitting devices that emit red light, and a third group of solid-state light emitting devices that emit amber or yellow light, the flexible panel being a tail light assembly for a vehicle (column 5, lines 9-23; figures 3 and 4, column 8, lines 47-63).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have three separate groups of light emitting devices, each group emitting light of a different color with one group emitting white light, a second group emitting red light, and a third group emitting amber or yellow light.

The suggestion/motivation for doing so would have been because the specific color of each group of light emitting devices, for a vehicle tail light assembly, typically serves to transmit the status of a particular vehicle function to other persons; white for back-up lights, red to mark the rear of the vehicle, bright

red to indicate stopping, and amber, or yellow to indicate marker, running, or turn signal lights.

Therefore, it would have been obvious to obtain the invention as specified in claims 5, 7, 14, and 15.

Regarding claims 16 and 17, Parker further discloses

where the flexible panel **21** is elongate and is mounted on a front surface of a vehicle (column 8, lines 17-25).

where the flexible light emitting panel, further has a plurality of lenses, each lens focusing the light emitted by a different one of the plurality of solid-state light emitting devices in a predefined direction that is generally oriented away from the flexible substrate (column 5, lines 9-23; column 7, lines 27-35; column 8, lines 59-63).

Regarding claims 19 and 20, the flexible light emitting panel of Claim 13, Gustafson further discloses

where the plurality of solid-state light emitting devices **626** are electrically coupled to each flexible conductive trace **620** with one of a solder **660** and a conductive adhesive **662** (figures 10-12, 20, 21; column 8, line 28 – column 9, line 6).

where at least one of the anode and the cathode of each of the plurality of solid-state light emitting devices is connected to a corresponding one of the positive and negative flexible conductive traces using a flexible lead **634** (figures 17-21; column 8, lines 48-64).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to electrically connect an anode of each solid-state light emitting device to the positive flexible conductive trace and electrically connect a cathode of each solid-state light emitting device to the negative flexible conductive trace.

The suggestion/motivation for doing so would have been because such devices have polarity and will not all illuminate when connected in a parallel circuit unless such connection is utilized.

Regarding claim 22, Parker discloses where the flexible substrate is mounted within a recess formed in the exterior surface of the vehicle (column 1, lines 58-63, column 8, lines 57-63, column 9, lines 22-29).

Therefore, it would have been obvious to combine Gustafson with Parker to obtain the invention as specified in claims 13-17, 19, 20, and 22.

4. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parker *et al.* as applied to claim 1 above, and further in view of Parkyn, Jr. *et al.* (5,926,320).

Parker does not disclose expressly the flexible vehicular light source of claim 1, further having:

a totally internally reflective (TIR) lens that covers at least a portion of the plurality of solid-state light emitting devices, said TIR lens focusing the light emitted thereby in a desired direction.

a totally internally reflective (TIR) lens for each of the plurality of solid-state light emitting devices, said TIR lenses focusing the light emitted by the plurality of solid-state light emitting devices away from the front surface, in a desired direction.

Parkyn, Jr. discloses a Ring-Lens system for efficient beam formation having:

a totally internally reflective (TIR) lens that covers at least a portion of a solid-state light emitting device, the TIR lens focusing the light emitted thereby in a desired direction.

a totally internally reflective (TIR) lens for each of a solid-state light emitting device, the TIR lenses focusing the light emitted by the solid-state light emitting device away from the front surface, in a desired direction.

Parker and Parkyn are analogous art because they both disclose the use of solid-state light emitting devices on the exterior of vehicles.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the TIR lens of Parkyn's disclosure for each solid-state light emitting device of Parker's invention.

The suggestion/motivation for doing so would have been because to improve illumination efficiency or reduce electrical power consumption (Parkyn: column 1, lines 5-50).

Therefore, it would have been obvious to combine Parkyn with Parker to obtain the invention as specified in claims 10 and 11.

5. Claims 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parker and Gustafson as applied to claim 13 above, and further in view of Parkyn, Jr. *et al.* (5,926,320).

Parker and Gustafson do not disclose expressly the flexible light emitting panel of Claim 13, further having

a plurality of totally internally reflective (TIR) lenses, each TIR lens reflecting the light emitted by a different one of the plurality of solid-state light emitting devices in a predefined direction that is generally oriented away from the flexible substrate.

a totally internally reflective (TIR) lens that covers at least a portion of the plurality of solid-state light emitting devices, the TIR lens focusing the light emitted thereby in a desired direction.

Parkyn, Jr. discloses

a totally internally reflective (TIR) lens, each TIR lens reflecting the light emitted by a solid-state light emitting device in a predefined direction that is generally oriented away from the flexible substrate.

a totally internally reflective (TIR) lens that covers at least a portion of a solid-state light emitting device, the TIR lens focusing the light emitted thereby in a desired direction.

Parker, Gustafson and Parkyn are analogous art because they all disclose the use of solid-state light emitting devices on the exterior of vehicles.

At the time of the invention, it would have been obvious to a person of ordinary

skill in the art to use the TIR lens of Parkyn's disclosure for each solid-state light emitting device of Parker's invention.

The suggestion/motivation for doing so would have been because to improve illumination efficiency or reduce electrical power consumption (Parkyn: figures 5 and 6; column 1, lines 5-50).

Therefore, it would have been obvious to combine Parkyn with Parker and Gustafson to obtain the invention as specified in claims 18 and 21.

6. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gustafson in view of Parker *et al.* and Ishibashi as disclosed above.

Gustafson discloses a method (column 3, lines 11-23; column 10, 12-18) for providing external lighting for a vehicle, having the steps of:

(a) providing a flexible substrate having an electrical conductor **10,600** (figures 1 and 10) adapted to a source of electrical power on a vehicle, the flexible substrate having an upper surface and a lower surface;

(b) mounting a plurality of solid-state light emitting devices **26,626** in a spaced-apart array on the upper surface of the flexible substrate **16,616**, so that the plurality of solid-state light emitting devices are coupled to the electrical conductor **30,630** (figures 1-3, 10-12);

(c) protecting the plurality of solid-state light emitting devices with a flexible, generally light transmissive cover **14,614** that overlies the array of solid-state light emitting devices and also conforms to the exterior;

Gustafson does not disclose expressly a method for providing external lighting

for a vehicle having the steps of;

(d) attaching the lower surface of the flexible substrate to an external surface of the vehicle, so that the flexible substrate and the flexible generally light transmissive cover conforms to even a non-planar shape of the external surface .

Parker discloses a method for providing external lighting for a vehicle having the steps of;

(d) attaching the lower surface of the flexible substrate to an external surface of the vehicle, so that the flexible substrate and the flexible generally light transmissive cover conforms to even a non-planar shape of the external surface (figures 3 and 4; column 1, lines 50-63, column 8, lines 14-63).

Gustafson and Parker are analogous art because they both disclose flexible light panels that may be attached to non-planar vehicle surfaces to be used as running lights or visibility lights (Parker: column 1, lines 50-55; Gustafson: column 10, lines 12-18).

The suggestion/motivation for doing so would have been to utilize an improved single piece LED light panel that is impervious to moisture and provides a high degree of protection to other forms of potentially damaging elements and is produced in a cost effective manner (Gustafson: column 2, lines 23-42).

Therefore, it would have been obvious to combine Gustafson with Parker to obtain the invention as specified in claim 23.

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gustafson and Parker as applied to claim 23 above, and further in view of Duarte (5,559,681).

Gustafson and Parker do not disclose expressly the method of claim 23, further having the step of providing mounting means for affixing the flexible substrate to an exterior surface of a vehicle.

Duarte discloses a mounting means **32** for affixing the flexible substrate **30** to a surface (figure 3; column 4, lines 12-19).

Gustafson, Parker, and Duarte are analogous art because they all disclose flexible light panels using solid-state light emitting devices.

The suggestion/motivation for doing so would have been to utilize a simple and inexpensive mounting means for affixing the flexible substrate to an exterior surface of a vehicle where the mounting means would be resistant to collision damage.

Therefore, it would have been obvious to combine Duarte with Gustafson and Parker to obtain the invention as specified in claim 24.

Allowable Subject Matter

8. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Prior art does not disclose the flexible vehicular light source of claim 1, where at least a portion of the solid-state light emitting devices in a first group emit infrared light.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Müller (US 6,250,788) is provided as an example of a Motor Vehicle Light Arrangement having more than one plurality of solid-state light emitting devices.

Goodrich (US 5,162,696) is provided as an example of Flexible Encasements for LED Display Panels.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David V. Hobden whose telephone number is 703-305-4469. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra L O'Shea can be reached on 703-305-4939. The fax phone numbers for the organization where this application or proceeding is assigned are 703-

308-7722 for regular communications and 703-308-8303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0956.

DVH
February 27, 2002

THOMAS M. SEMBER
PRIMARY EXAMINER